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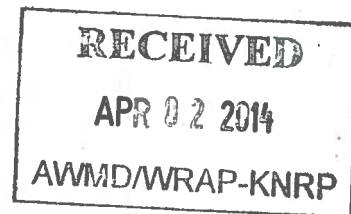
Robert Moser, MD, Secretary

Department of Health & Environment

Sam Brownback, Governor

Mar 31, 2014

Brenda B. Epperson
Environmental Manager
MRP Properties Company, LLC
P.O. Box 696000
San Antonio, TX 78269-6000



**RE: Comments on the Human Health Risk Assessment Work Plan and Screening Level Ecological Risk Assessment for Soil and Groundwater
MRP Properties Company, LLC
1400 South M Street, Arkansas City, Kansas
RCRA ID# KSD087418695**

Dear Ms. Epperson,

The Kansas Department of Health and Environment (KDHE) and the Environmental Protection Agency (EPA) Region 7 reviewed MRP's document dated November 22, 2013, submitted by MWH Americas, Inc. on behalf of MRP Properties Company, LLC (MRP) for the Former Total Petroleum Refinery in Arkansas City. The document is in response to KDHE and EPA's comments on the Human Health Risk Assessment (HHRA) Work Plan dated January 25, 2013 and issues discussed during a teleconference between KDHE, EPA, MRP, and MWH conducted on September 3, 2013. The HHRA Work Plan is required under Section III.H. of the Part II Permit. The HHRA work plan reviews existing soil data and details methods to be used in the preparation of a baseline human health risk assessment. The Screening Level Ecological Risk Assessment (SLERA) was requested by the EPA and KDHE during the September 3rd teleconference to determine whether there is enough evidence to require a baseline ecological risk assessment. KDHE and EPA have the following comments:

HHRA

1. **Section 1.1.4 (p. 1-5) and Figures 1-2 and 1-5.** Exposure Areas are areas in which current or potential future human receptors are equally likely to come into contact over their duration of exposure. For current industrial exposure scenarios, we examine the area in which a worker generally performs his or her duties. For example, workers may be limited to one or two buildings on a property, along with the surrounding outdoor area. When evaluating potential future scenarios, we also consider geographic features of the land and the presence of existing buildings along with potential future divisions and sales of the property. The following considerations should be factored into the risk assessment process:
 - a. **EU size and number of samples.** In Section 1.1.4, MRP communicates that they plan to use land use controls to limit future commercial or industrial properties to approximately 10 acres each, which will be individually sold. Based on this assumption, the entire property is divided into EUs of approximately 10 acres each, as shown in Figure 1-5. This size appears generally acceptable for future exposure scenarios (see below). However, please note that while 8 to 10 samples may be adequate to calculate a representative EPC for a smaller EU, larger EUs may

RCRA



require more samples, particularly if the distribution of contamination across an EU is heterogeneous. The following website contains information on the Data Quality Objectives process, including tools such as Visual Sample Plan that can be used to develop a technically defensible sampling plan (see <http://www.epa.gov/quality/dqos.html>). Please also consider that additional samples may be required to satisfy other RCRA objectives, such as delineation of the horizontal and vertical extent of contamination around Solid Waste Management Units, Areas of Concern, and hotspots.

- b. **EU boundaries.** The only areas of the property that should be excluded from the HHRA are the oxidation ponds and the No. 3 pond, covered under a NPDES Permit, and closed units #1 Surface Impoundment, #2 Surface Impoundment, and #3A Aerated Lagoon. Please revise Figure 1-5 to include SWMU #9, SWMU #10, SWMU #11, and SWMU #25 within the defined exposure units. In addition, please revise exposure units EU-5 and EU-6 to ensure that the currently occupied maintenance building, along with some surrounding outside area, is located within one EU. One final concern is for the workers, buildings, and/or structures in the areas currently used for asphalt operations. Please discuss expectations of future asphalt operations at this site. It may be appropriate to create an exposure unit specific to areas involved in asphalt operations.
2. **Section 2.1.7 (p. 2-3).** Please revise this section to include the following information. The oxidation ponds and No. 3 pond are currently covered under an NPDES permit. These ponds are used for groundwater remediation and will be active until Groundwater Protection Standards (GWPS) are achieved on site. It is anticipated these ponds will be evaluated and closed upon achievement of GWPS.
3. **Section 4.1.1 (p. 4-1).** In this section, MRP indicated that RSLs based on non-cancer health effects will be divided by 10, to account for potential additivity. This approach is appropriate if the initial Regional Screening Levels are based on a non-cancer hazard quotient of 1. In the last revision of the RSLs, separate tables were developed based on HQs of 1 or 0.1. Referencing the RSL tables based on HQs of 0.1 (and target cancer risks of 1E-06) will simplify identification of the correct RSL values.
4. **Section 4.1.2.3 (pp. 4-4 and 4-5).** Where buildings currently exist, MRP should screen for potential vapor intrusion issues regarding benzene and Total Petroleum Hydrocarbon concentrations in soil and shallow groundwater data using the following EPA guidelines obtained from recent draft guidance for addressing petroleum vapor intrusion. MRP should consider NAPL distribution as well as other factors. It is anticipated that subslab soil gas sampling will be necessary if minimum vertical separation distances are not met for the criteria defined in the following table:

Recommended Vertical Separation Distance Between Contamination And Building Foundation, Basement, Or Slab.

Media	Benzene Concentration	TPH Concentration	Minimum Vertical Separation Distance (feet)*
Soil (mg/kg)	≤ 10	≤ 250	6
	> 10	> 250	15
Groundwater ($\mu\text{g/L}$)	$\leq 5,000$	$\leq 30,000$	6
	$> 5,000$	$> 30,000$	15

*The vertical separation distance represents the distance between base of the building structure and the top of the water table (groundwater) or contaminated horizon (soil).

If subslab soil gas samples are collected and volatile COPC concentrations in subslab soil gas samples are greater than $1E-05$ cancer risk or a non-cancer hazard index of 1, subslab soil gas, indoor air, and ambient air samples will need to be collected to complete evaluation of the vapor intrusion pathway.

5. **Section 4.1.2.3 (p. 4-4).** Historical discharges of impacted groundwater and free product to the Walnut River necessitate the collection of surface water and sediment data from the Walnut River that bounds the facility. This data can be also used to validate MRP's assumptions that off-site receptors have not been exposed to site-related contamination. Please include a statement that the Walnut River surface water and sediments will be evaluated during the Surface Water and Sediments HHRA.
6. **Section 4.2 (pp. 4-5 and 4-6).** In addition to the five steps that are listed for conducting a baseline HHRA, please add data evaluation to that list. This step includes an evaluation of the quality of the available data and usability in risk assessment, as well as screening for COPCs.
7. **Section 4.2.2 (p. 4-6).** This section describes exposure quantification.
 - a. Please refer to Comment 1a regarding the appropriate number of soil samples for larger exposure units.
 - b. For vapor intrusion, only shallow groundwater data should be used, preferably from monitoring wells screened across the top of the water table. For EUs with existing buildings, please refer to Comment 4.
8. **Section 4.2.2.2 (p. 4-9).** This page provides the equations planned to calculate inhalation of indoor air based on groundwater data. The indoor air concentration should not be calculated using the J&E Model; rather, please use shallow groundwater concentrations (i.e., at or near the top of the water table) along with the default attenuation factor as presented in the EPA's VISL calculator.
9. **Section 4.2.4 (p.4-11).** MRP has stated that sites with cumulative cancer risk estimates below the 1×10^{-6} to 1×10^{-4} range may be appropriate for conditional closure. A previous agreement between EPA, KDHE, and MRP has set 1×10^{-5} as the point of departure for risk management decisions at this site. Please revise the last paragraph of this section to note that the appropriate threshold level for cumulative cancer risk at the site is 1×10^{-5} .
10. **Table 4-3.** This table presents the exposure parameters to be used in the HHRA.
 - a. Please be aware that EPA anticipates changes to many of these exposure parameter values soon, based on the 2011 Exposure Factors Handbook. The new values are expected to be incorporated into the spring 2014 revision of the EPA's RSL tables.
 - b. The exposure duration (ED) term should not equal the non-cancer averaging time for subchronic exposure scenarios lasting less than one year. Instead, ED (in years) for projects lasting less than one year should be set at one year. This is because the ED term in years is simply multiplied by the exposure frequency in days per year in order to convert to units of days in the exposure equations. Otherwise, for exposures lasting less than a year, multiplying by an ED of less than one year would result in double-counting. Assume a project lasts 10 weeks (non-cancer AT = 70 days), where workers are exposed 5 days/week, for a total of 50 days/year (EF) over the project. Here, 50 days/year exposure times 1 year gives 50 days of exposure. In contrast, 50 days/year

times 0.19 years (70 days divided by 365 days) equals 9.6 days of exposure. This is just an example; if MRP believes construction projects would last longer in the 10 acre EUs, the parameters should be adjusted.

- c. MRP calculated a Particulate Emission Factor (PEF) of 8.06×10^8 for industrial/commercial workers. The EPA RSL calculator Particulate Emission Factor value using constants A, B, and C for Lincoln and a site area of 10 acres is $7.90 \times 10^8 \text{ m}^3/\text{kg}$. Please ensure the correct value is used in the HHRA.
- d. For construction workers, a separate site-specific subchronic PEF will need to be calculated. This term accounts for the shorter exposure duration and includes a dispersion correction factor, among other differences from the regular PEF.

SLERA

1. **Section 5.0, 5.1, 5.1.1, 5.1.2, 5.1.3, 5.1.4 (p. 5-1 and 5-2).** A screening level ecological risk assessment (SLERA) is necessary for this site because of its close proximity to the Walnut River and the Kaw Wildlife Area. The Screening level Ecological Risk Assessment presented by MRP in Section 5 of this document is insufficient. The SLERA process consists of Steps 1 and 2 out of an 8 step process (U.S.EPA, 1997). At a minimum, a SLERA would require the following information:

- A conceptual site model with all possible receptors for both aquatic and terrestrial.
- A map with on-site habitats including areas of soil, sediment, and surface water.
- A map with locations of previously collected data.
- A list of species (including threatened and endangered and species in need of conservation) that may be found in the area. That list can be obtained from Kansas Department of Wildlife and Parks (2013).
- Hazard Quotients (HQ, see below) performed for all previously collected soil, surface water, and sediment data using appropriate ecological screening levels (see below). Data gaps need to be identified and listed in the work plan and the data gaps can be addressed during future field sampling events.

$$\text{HQ} = \frac{\text{Chemical of Concern Maximum Concentration}}{\text{Ecological Screening value}}$$

Lastly, a recommendation section needs to be included in the SLERA that states if the above information directs the ecological assessment to stop or move forward into a baseline ecological risk assessment.

Recommended Ecological Screening Levels for Use in Calculating HQs

Surface Water

- National Ambient Water Quality Criteria (U.S. EPA, 2009).
<http://water.epa.gov/scitech/swguidance/standards/criteria/current/index.cfm>
- Kansas Water Quality Standards (KDHE, 2008)
http://water.epa.gov/scitech/swguidance/standards/wqslibrary/upload/2008_11_12_standards_wqslibrary_ks_ks-tables.pdf
- Region 5 Ecological Screening Levels, (U.S. EPA, 2003).

<http://epa.gov/region05/waste/cars/pdfs/ecological-screening-levels-200308.pdf>

Sediment

- MacDonald DD, Ingersoll CO, Berger T. 2000. Development and evaluation of consensus-based sediment quality guidelines for freshwater ecosystems. *Arch Environ Contam Toxicol* 39:20-31.
- Region 5 Ecological Screening Levels, (U.S. EPA, 2003).
<http://epa.gov/region05/waste/cars/pdfs/ecological-screening-levels-200308.pdf>

Soil

- Ecological Soil Screening Levels. <http://www.epa.gov/ecotox/ecossl/index.html>

References

U.S.EPA, 1997. Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments-Interim Final.

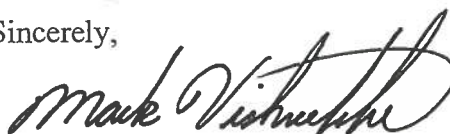
<http://www.epa.gov/oswer/riskassessment/ecorisk/ecorisk.htm>

Kansas Department of Wildlife, Parks, and Tourism, 2013. KAW Wildlife Park.

<http://www.kdwpt.state.ks.us/news/KDWPT-Info/Locations/Wildlife-Areas/Region-4/Kaw>

Please respond to these comments by April 28, 2014 and submit revised pages as necessary. I would recommend a conference call between all parties to finalize the exposure unit boundaries and address any other points of concern. If you have any questions, please contact me by phone at (785)-291-3760 or e-mail at (mvishnefske@kdheks.gov). Brad Roberts (EPA) can be contacted at (913)-551-7279 or e-mail at (roberts.bradley@epa.gov).

Sincerely,



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Hazardous Waste Corrective Action and Geology Unit

cc: Jay Mednick – MWH
Brad Roberts – EPA Region VII - AWMD/WRAP
Allison Herring – DEA/SCDO/Waste Programs
Bill Bider – BWM